

Valery Gusynin

List of Publications by Year in descending order

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144
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144
docs citations

144
times ranked

4259
citing authors

#	ARTICLE	IF	CITATIONS
1	Unconventional Integer Quantum Hall Effect in Graphene. Physical Review Letters, 2005, 95, 146801.	2.9	1,214
2	Magneto-optical conductivity in graphene. Journal of Physics Condensed Matter, 2007, 19, 026222.	0.7	768
3	Catalysis of Dynamical Flavor Symmetry Breaking by a Magnetic Field in 2 + 1 Dimensions. Physical Review Letters, 1994, 73, 3499-3502.	2.9	483
4	Unusual Microwave Response of Dirac Quasiparticles in Graphene. Physical Review Letters, 2006, 96, 256802.	2.9	476
5	Transport of Dirac quasiparticles in graphene: Hall and optical conductivities. Physical Review B, 2006, 73, .	1.1	449
6	Dimensional reduction and catalysis of dynamical symmetry breaking by a magnetic field. Nuclear Physics B, 1996, 462, 249-290.	0.9	422
7	Magnetic field driven metal-insulator phase transition in planar systems. Physical Review B, 2002, 66, .	1.1	403
8	AC CONDUCTIVITY OF GRAPHENE: FROM TIGHT-BINDING MODEL TO 2 + 1-DIMENSIONAL QUANTUM ELECTRODYNAMICS. International Journal of Modern Physics B, 2007, 21, 4611-4658.	1.0	346
9	Dimensional reduction and dynamical chiral symmetry breaking by a magnetic field in 3 + 1 dimensions. Physics Letters, Section B: Nuclear, Elementary Particle and High-Energy Physics, 1995, 349, 477-483.	1.5	269
10	Magnetic oscillations in planar systems with the Dirac-like spectrum of quasiparticle excitations. Physical Review B, 2004, 69, .	1.1	238
11	On the universal ac optical background in graphene. New Journal of Physics, 2009, 11, 095013.	1.2	232
12	Dynamical symmetry breaking and particle mass generation in gauge field theories. Rivista Del Nuovo Cimento, 1983, 6, 1-90.	2.0	218
13	Dynamical flavor symmetry breaking by a magnetic field in 2+1 dimensions. Physical Review D, 1995, 52, 4718-4735.	1.6	206
14	Sum rules for the optical and Hall conductivity in graphene. Physical Review B, 2007, 75, .	1.1	189
15	Anomalous Absorption Line in the Magneto-Optical Response of Graphene. Physical Review Letters, 2007, 98, 157402.	2.9	186
16	Excitonic gap, phase transition, and quantum Hall effect in graphene. Physical Review B, 2006, 74, .	1.1	163
17	Magnetic oscillations in planar systems with the Dirac-like spectrum of quasiparticle excitations. II. Transport properties. Physical Review B, 2005, 71, .	1.1	141
18	Dynamical chiral symmetry breaking by a magnetic field in QED. Physical Review D, 1995, 52, 4747-4751.	1.6	135

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19	Theory of the magnetic catalysis of chiral symmetry breaking in QED. Nuclear Physics B, 1999, 563, 361-389.	0.9	124
20	Gap generation and semimetal-insulator phase transition in graphene. Physical Review B, 2010, 81, .	1.1	122
21	Supercritical Coulomb center and excitonic instability in graphene. Physical Review B, 2009, 80, .	1.1	98
22	Dynamical chiral symmetry breaking on a brane in reduced QED. Physical Review D, 2001, 64, .	1.6	96
23	Catalysis of Dynamical Flavor Symmetry Breaking by a Magnetic Field in 2 + 1 Dimensions. Physical Review Letters, 1996, 76, 1005-1005.	2.9	86
24	Effective action approach to the Leggett's mode in two-band superconductors. European Physical Journal B, 2002, 30, 45-51.	0.6	80
25	Derivative expansion of the effective action for quantum electrodynamics in 2+1 and 3+1 dimensions. Journal of Mathematical Physics, 1999, 40, 5406-5439.	0.5	70
26	Dynamical Chiral Symmetry Breaking in QED in a Magnetic Field: Toward Exact Results. Physical Review Letters, 1999, 83, 1291-1294.	2.9	60
27	Derivative expansion for the one-loop effective Lagrangian in QED. Canadian Journal of Physics, 1996, 74, 282-289.	0.4	58
28	Dynamics in the quantum Hall effect and the phase diagram of graphene. Physical Review B, 2008, 78, .	1.1	56
29	Electron states for gapped pseudospin-1 fermions in the field of a charged impurity. Physical Review B, 2019, 99, .	1.1	54
30	Dynamical polarization of graphene in a magnetic field. Physical Review B, 2011, 83, .	1.1	53
31	Chiral symmetry breaking in QED in a magnetic field at finite temperature. Physical Review D, 1997, 56, 5251-5253.	1.6	49
32	Vacuum instability of massless electrodynamics and the Gell-Mann-Low eigenvalue condition for the bare coupling constant. Physics Letters, Section B: Nuclear, Elementary Particle and High-Energy Physics, 1978, 78, 136-139.	1.5	48
33	Edge states, mass and spin gaps, and quantum Hall effect in graphene. Physical Review B, 2008, 77, .	1.1	48
34	Infrared cutoff dependence of the critical flavor number in three-dimensional QED. Physical Review D, 2003, 68, .	1.6	45
35	Dynamics and phase diagram of the $\langle \bar{\psi}\psi \rangle$ in quantum Hall state in bilayer graphene. Physical Review B, 2010, 81, .		
36	Critical coupling in strong QED with weak gauge dependence. Physics Letters, Section B: Nuclear, Elementary Particle and High-Energy Physics, 1994, 329, 117-122.	1.5	44

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37	(2+1)-dimensional QED with dynamically massive fermions in vacuum polarization. Physical Review D, 1996, 53, 2227-2235.	1.6	44
38	Nonperturbative infrared dynamics of three-dimensional QED with a four-fermion interaction. Physical Review D, 2001, 63, .	1.6	42
39	Critical number of fermions in three-dimensional QED. Physical Review D, 2016, 94, .	1.6	39
40	Electron self-energy in strong magnetic field: summation of double logarithmic terms. Physics Letters, Section B: Nuclear, Elementary Particle and High-Energy Physics, 1999, 450, 267-274.	1.5	38
41	New algorithm for computing the coefficients in the heat kernel expansion. Physics Letters, Section B: Nuclear, Elementary Particle and High-Energy Physics, 1989, 225, 233-239.	1.5	37
42	Seeley-Gilkey coefficients for fourth-order operators on a riemannian manifold. Nuclear Physics B, 1990, 333, 296-316.	0.9	37
43	Transport properties in the density-wave state in an external magnetic field: The Wiedemann-Franz law. Physical Review B, 2003, 67, .	1.1	37
44	Edge states on graphene ribbons in magnetic field: Interplay between Dirac and ferromagnetic-like gaps. Physical Review B, 2009, 79, .	1.1	37
45	Broken symmetry $\frac{1}{2}$ Hall states in bilayer graphene: Landau level mixing and dynamical screening. Physical Review B, 2012, 85, .	1.1	37
46	Chiral Symmetry Breaking and Nonperturbative Scale Anomaly in Gauge Field Theories. Progress of Theoretical Physics, 1989, 81, 426-450.	2.0	35
47	Heat kernel expansion for nonminimal differential operations and manifolds with torsion. Nuclear Physics B, 1991, 362, 449-471.	0.9	35
48	Phase diagram of a 2D metal system with a variable number of carriers. JETP Letters, 1997, 65, 182-188.	0.4	34
49	Thermal conductivity in 3D NJL model under external magnetic field. European Physical Journal B, 2003, 33, 397-411.	0.6	34
50	Spontaneous rotational symmetry breaking and roton like excitations in gauged \tilde{f} -model at finite density. Physics Letters, Section B: Nuclear, Elementary Particle and High-Energy Physics, 2004, 581, 82-92.	1.5	34
51	Magnetic field driven instability of a charged center in graphene. Physical Review B, 2011, 83, .	1.1	34
52	Dynamical generation of the spectrum of fermions in non-abelian gauge field theories. Physics Letters, Section B: Nuclear, Elementary Particle and High-Energy Physics, 1981, 100, 157-162.	1.5	33
53	MAGNETIC FIELD INDUCED GAP AND KINK BEHAVIOR OF THERMAL CONDUCTIVITY. Modern Physics Letters B, 2002, 16, 107-116.	1.0	32
54	Chiral symmetry breaking in dimensionally regularized nonperturbative quenched QED. Physical Review D, 1999, 60, .	1.6	31

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55	Broken-symmetry states and phase diagram of the lowest Landau level in bilayer graphene. Physical Review B, 2011, 84, .	1.1	30
56	Toward a theory of the quantum Hall effect in graphene. Low Temperature Physics, 2008, 34, 790-793.	0.2	28
57	Anomalous thermospin effect in the low-buckled Dirac materials. Physical Review B, 2014, 90, .	1.1	28
58	Nonperturbative scale anomaly and dilatons in gauge field theories. Physics Letters, Section B: Nuclear, Elementary Particle and High-Energy Physics, 1987, 198, 79-83.	1.5	26
59	Dynamical chiral symmetry breaking in gauge theories with extra dimensions. Physical Review D, 2002, 65, .	1.6	26
60	On the vacuum rearrangement in massless chromodynamics. Physics Letters, Section B: Nuclear, Elementary Particle and High-Energy Physics, 1978, 76, 585-588.	1.5	25
61	Chiral symmetry breaking in asymptotically free and non-asymptotically free gauge theories. Physics Letters, Section B: Nuclear, Elementary Particle and High-Energy Physics, 1987, 191, 141-146.	1.5	24
62	Effective action and conformal phase transition in three-dimensional QED. Physical Review D, 1998, 58, .	1.6	24
63	Magneto-optical and optical probes of gapped ground states of bilayer graphene. Physical Review B, 2012, 86, .	1.1	24
64	Electronic states of pseudospin-1 fermions in dice lattice ribbon. Low Temperature Physics, 2018, 44, 1313-1324.	0.2	24
65	Boundary effects in the magnetic catalysis of chiral symmetry breaking. Physics Letters, Section B: Nuclear, Elementary Particle and High-Energy Physics, 1999, 455, 217-223.	1.5	23
66	Pseudogap phase formation in the crossover from Bose-Einstein condensation to BCS superconductivity. Journal of Experimental and Theoretical Physics, 1999, 88, 685-695.	0.2	23
67	Chiral symmetry breaking with the Curtis-Pennington vertex. Physics Letters, Section B: Nuclear, Elementary Particle and High-Energy Physics, 1993, 303, 157-162.	1.5	22
68	Anomalous dimensions of gauge-invariant amplitudes in massless effective gauge theories of strongly correlated systems. Physical Review B, 2003, 67, .	1.1	22
69	SURPRISES IN NONPERTURBATIVE DYNAMICS IN $\bar{t}f$ -MODEL AT FINITE DENSITY. Modern Physics Letters A, 2004, 19, 1341-1356.	0.5	22
70	Energy gaps at neutrality point in bilayer graphene in a magnetic field. JETP Letters, 2010, 91, 314-318.	0.4	22
71	Fractal structure of the effective action in (quasi)planar models with long-range interactions. Physics Letters, Section A: General, Atomic and Solid State Physics, 2003, 313, 472-477.	0.9	21
72	Coulomb interaction and magnetic catalysis in the quantum Hall effect in graphene. Physica Scripta, 2012, T146, 014018.	1.2	20

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73	Gap generation and flat band catalysis in dice model with local interaction. Physical Review B, 2021, 103, .	1.1	20
74	Collective modes of colorâ€“flavor locked phase of dense QCD at finite temperature. Nuclear Physics A, 2002, 700, 577-617.	0.6	19
75	Screening of a charged impurity in graphene in a magnetic field. Physical Review B, 2016, 94, .	1.1	19
76	Thermal conductivity and competing orders in d-wave superconductors. European Physical Journal B, 2003, 37, 363-368.	0.6	18
77	Coexistence and competition of nematic and gapped states in bilayer graphene. Physical Review B, 2012, 86, .	1.1	18
78	Supercritical instability in graphene with two charged impurities. Physical Review B, 2013, 88, .	1.1	18
79	Dynamical mass function of quark and effective potential in QCD. Zeitschrift FÃ¼r Physik C-Particles and Fields, 1985, 29, 547-550.	1.5	17
80	Gap generation for Dirac fermions on Lobachevsky plane in a magnetic field. Annals of Physics, 2008, 323, 2132-2146.	1.0	17
81	Edge states in quantum Hall effect in graphene (Review Article). Low Temperature Physics, 2008, 34, 778-789.	0.2	17
82	Entropy spikes as a signature of Lifshitz transitions in the Dirac materials. Scientific Reports, 2017, 7, 10271.	1.6	17
83	Detection of topological phase transitions through entropy measurements: The case of germanene. Physical Review B, 2018, 97, .	1.1	17
84	RKKY interaction in a doped pseudospin-1 fermion system at finite temperature. Physical Review B, 2020, 101, .	1.1	16
85	LargeN dynamics in QED in a magnetic field. Physical Review D, 2003, 67, .	1.6	15
86	Electron states in the field of charged impurities in two-dimensional Dirac systems (Review Article). Low Temperature Physics, 2018, 44, 371-400.	0.2	15
87	Phase fluctuations and single-fermion spectral density in 2d systems with attraction. Journal of Experimental and Theoretical Physics, 2000, 90, 993-1009.	0.2	14
88	Chiral symmetry breaking by a non-Abelian external field in 2+1 dimensions. Physical Review D, 1998, 57, 5230-5235.	1.6	13
89	Greenâ€™s function of a 2D Fermi system undergoing a topological phase transition. JETP Letters, 1999, 69, 141-147.	0.4	13
90	Supercritical electric dipole and migration of electron wave function in gapped graphene. Europhysics Letters, 2015, 111, 37003.	0.7	13

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91	Greenâ€™s functions of composite operators and bound states in gauge theories. Physical Review D, 1989, 39, 2355-2367.	1.6	12
92	Gap generation in ABC-stacked multilayer graphene: Screening versus band flattening. Physical Review B, 2013, 88, .	1.1	12
93	Quantum oscillations as the tool for study of new functional materials (Review Article). Low Temperature Physics, 2014, 40, 270-279.	0.2	12
94	Orbital susceptibility of T-graphene: Interplay of high-order van Hove singularities and Dirac cones. Physical Review B, 2021, 103, .	1.1	12
95	On-diagonal heat kernel expansion in covariant derivatives in curved space. Classical and Quantum Gravity, 1991, 8, 279-285.	1.5	11
96	Computation of the DeWitt-Seeley-Gilkey coefficient E4 for nonminimal operator in curved space. Nuclear Instruments and Methods in Physics Research, Section A: Accelerators, Spectrometers, Detectors and Associated Equipment, 1997, 389, 365-369.	0.7	11
97	Supercriticality of novel type induced by electric dipole in gapped graphene. Physical Review B, 2015, 92, .	1.1	11
98	Landau-Khalatnikov-Fradkin transformation in three-dimensional quenched QED. Physical Review D, 2020, 102, .	1.6	11
99	ON THE EFFECTIVE ACTION IN FIELD THEORIES WITH DYNAMICAL SYMMETRY BREAKING. Modern Physics Letters A, 1991, 06, 2443-2452.	0.5	10
100	Local heat kernel asymptotics for nonminimal differential operators. Physics Letters, Section B: Nuclear, Elementary Particle and High-Energy Physics, 1991, 270, 29-36.	1.5	10
101	Analytic structure of scalar composites in the symmetric phase of the gauged Nambuâ€™Jona-Lasinio model. Physical Review D, 1998, 57, 6356-6371.	1.6	10
102	Non-perturbative scale anomaly and composite operators in gauge field theories. Physics Letters, Section B: Nuclear, Elementary Particle and High-Energy Physics, 1987, 198, 362-366.	1.5	9
103	Entropy Signatures of Topological Phase Transitions. Journal of Experimental and Theoretical Physics, 2018, 127, 958-983.	0.2	9
104	On the dynamics of tumbling gauge theories. Physics Letters, Section B: Nuclear, Elementary Particle and High-Energy Physics, 1983, 123, 407-412.	1.5	8
105	Entropy per particle spikes in the transition metal dichalcogenides. Low Temperature Physics, 2018, 44, 561-566.	0.2	8
106	Work function, deformation potential, and collapse of Landau levels in strained graphene and silicene. Physical Review B, 2020, 101, .	1.1	8
107	Dynamical realization of the linear $\bar{l}f$ -model and bifermion condensates in QCD. Physics Letters, Section B: Nuclear, Elementary Particle and High-Energy Physics, 1983, 123, 428-432.	1.5	7
108	On peculiarities of superconducting state formation in 2D metallic systems. Low Temperature Physics, 1997, 23, 612-617.	0.2	7

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109	Spin Nernst effect and intrinsic magnetization in two-dimensional Dirac materials. <i>Low Temperature Physics</i> , 2015, 41, 342-352.	0.2	7
110	Symbolic Computation of DeWitt-Seeley-Gilkey Coefficients on Curved Manifolds. <i>Journal of Symbolic Computation</i> , 1994, 17, 283-294.	0.5	6
111	Physical Gauge in the Problem of Dynamical Chiral Symmetry Breaking in QED in a Magnetic Field. <i>Foundations of Physics</i> , 2000, 30, 349-357.	0.6	6
112	Low-temperature superfluid stiffness of ad-wave superconductor in a magnetic field. <i>Physical Review B</i> , 2002, 66, .	1.1	6
113	Gauged Nambu-Jona-Lasinio model with extra dimensions: Phase structure and renormalizability. <i>Physical Review D</i> , 2004, 70, .	1.6	6
114	Gap generation and phase diagram in strained graphene in a magnetic field. <i>Physical Review B</i> , 2015, 91, .	1.1	6
115	Renormalization group and superconductivity, and neutrino-type solutions in field theory. <i>Nuclear Physics B</i> , 1976, 110, 445-460.	0.9	5
116	On the character of scalar symmetry breaking in gauge theories. <i>Physics Letters, Section B: Nuclear, Elementary Particle and High-Energy Physics</i> , 1988, 213, 177-180.	1.5	5
117	Quantum phase fluctuations responsible for pseudogap. <i>Physica C: Superconductivity and Its Applications</i> , 2002, 370, 239-245.	0.6	5
118	Comment on "Electron Mass Operator in a Strong Magnetic Field and Dynamical Chiral Symmetry Breaking". <i>Physical Review Letters</i> , 2003, 90, 089101; author reply 089102.	2.9	5
119	Magnetic field driven instability in the planar NJL model in the real-time formalism. <i>Physical Review D</i> , 2012, 86, .	1.6	5
120	Coulomb center instability in bilayer graphene. <i>Physical Review B</i> , 2017, 96, .	1.1	5
121	Four-loop singularities of the massless fermion propagator in quenched three-dimensional QED. <i>Physical Review D</i> , 2020, 102, .	1.6	5
122	Genesis and fading away of persistent currents in a Corbino disk geometry. <i>Physical Review B</i> , 2021, 104, .	1.1	5
123	Asymptotics of the heat kernel for nonminimal differential operators. <i>Ukrainian Mathematical Journal</i> , 1991, 43, 1432-1441.	0.1	4
124	On the spectrum of excitations in some strong coupling gauge models. <i>Physics Letters, Section B: Nuclear, Elementary Particle and High-Energy Physics</i> , 1989, 220, 635-640.	1.5	3
125	Pseudogap Phase Formation in the Crossover from Bose-Einstein Condensation to BCS Superconductivity in Low-Dimensional Systems. <i>International Journal of Modern Physics B</i> , 1998, 12, 3035-3038.	1.0	3
126	Carlson-Goldman modes in the color superconducting phase of dense QCD. <i>Physical Review D</i> , 2001, 64, .	1.6	3

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127	Broken symmetry states in bilayer graphene in electric and in-plane magnetic fields. Physical Review B, 2017, 95, .	1.1	3
128	Differential entropy per particle in Dirac semimetals in external magnetic field. Low Temperature Physics, 2020, 46, 264-268.	0.2	3
129	Renormalization group and dynamical symmetry breakdown in abelian gauge theories. Nuclear Physics B, 1976, 109, 526-546.	0.9	2
130	Mixed fermion-photon condensate in strongly coupled quantum electrodynamics. Physics Letters, Section B: Nuclear, Elementary Particle and High-Energy Physics, 1990, 242, 474-479.	1.5	2
131	The behavior of the paramagnetic susceptibility of a 2D metal during transitions between normal, pseudogap, and superconducting phases. Low Temperature Physics, 1997, 23, 936-937.	0.2	2
132	PHASE FLUCTUATIONS AND NON-FERMI LIQUID PROPERTIES OF 2D FERMI-SYSTEM WITH ATTRACTION. International Journal of Modern Physics B, 1999, 13, 3510-3512.	1.0	2
133	Renormalization group and infrared behaviour in theories with coupled massless fields. Nuclear Physics B, 1978, 135, 354-364.	0.9	1
134	Breaking of chiral symmetry in quenched QED in dimension $D < 4$. Nuclear Physics, Section B, Proceedings Supplements, 2001, 102-103, 355-362.	0.5	1
135	DYNAMICAL GAPS AND QUANTUM HALL EFFECT IN GRAPHENE. Modern Physics Letters B, 2009, 23, 891-902.	1.0	1
136	Dynamical polarization in ABC-stacked multilayer graphene in a magnetic field. Physical Review B, 2014, 90, .	1.1	1
137	Transport properties of AB stacked (Bernal) bilayer graphene on and without substrate within 2- and 4-band approximations. AIP Conference Proceedings, 2015, , .	0.3	1
138	An integral equation of Muskhelishvili type: Strong quantum electrodynamics. Journal of Mathematical Physics, 1995, 36, 2581-2592.	0.5	0
139	d-density wave state in an external magnetic field. Physica C: Superconductivity and Its Applications, 2004, 408-410, 420-421.	0.6	0
140	Phase Diagram of the Lowest Landau Level in Bilayer Graphene. Progress of Theoretical Physics Supplement, 2012, 197, 107-127.	0.2	0
141	Graphene nanostructures. Low Temperature Physics, 2020, 46, 209-210.	0.2	0
142	Academician of the NAS of Ukraine Vadym Mykhailovych Loktev (to the 75th anniversary of his) Tj ETQq0 0 0 rgBT Overlock 10 Tf 50 14	0.1	0